

# US 1 Corridor Study

No. CAMPO 2005-02

## Oversight Team Workshop Meeting No. 4

### Phase II Multimodal Alternatives

May 9, 2006

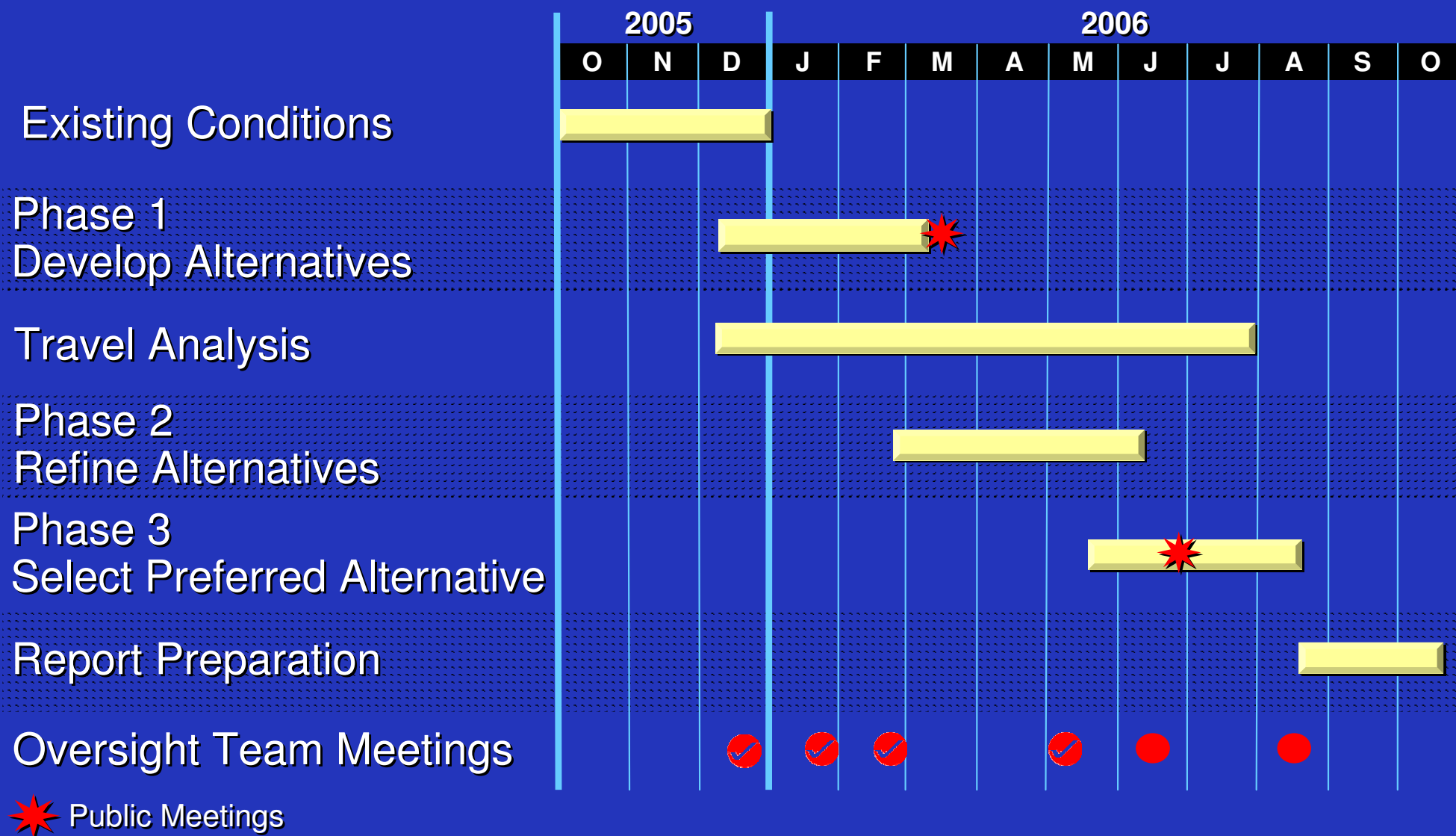
## Capital Area MPO



# Purpose & Need

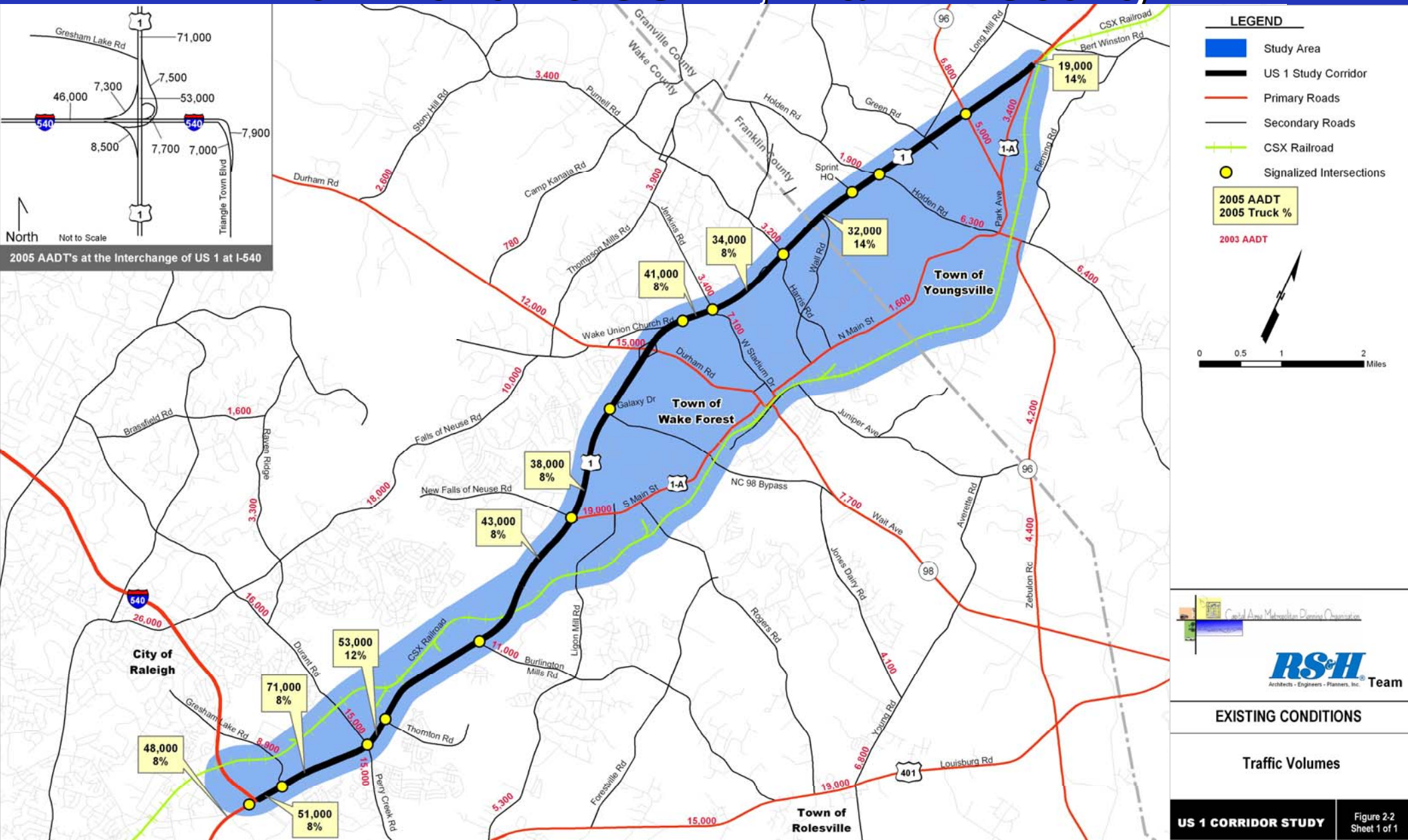
- Develop a Comprehensive, Long-Range Multimodal Transportation Plan that:
  - Improves Multimodal Access and Mobility
  - Encourages Economic Development
  - Increases Safety
  - Coordinates with Land Development
  - Supports Economic Growth
  - Relieves Recurring Congestion
  - Improves Safety

# Project Schedule



# US 1 Study Limits

## From I-540 To US 1A, Franklin County





# Year 2030 Modeling Results

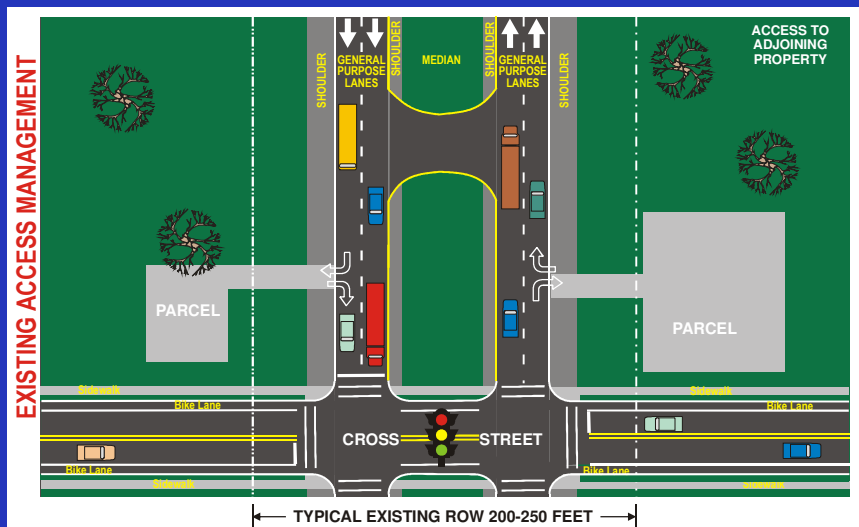
# US 1 Base Modeling Assumptions/Issues

- Use of CAMPO regional model
- 2030 horizon year
- Model adjustments reflections 2002 model calibrations
- Adjustments for HOV formation
  - Regional model doesn't provide reasonable corridor HOV estimates

# Corridor Alternatives Modeled (I-540 to Durham Rd)

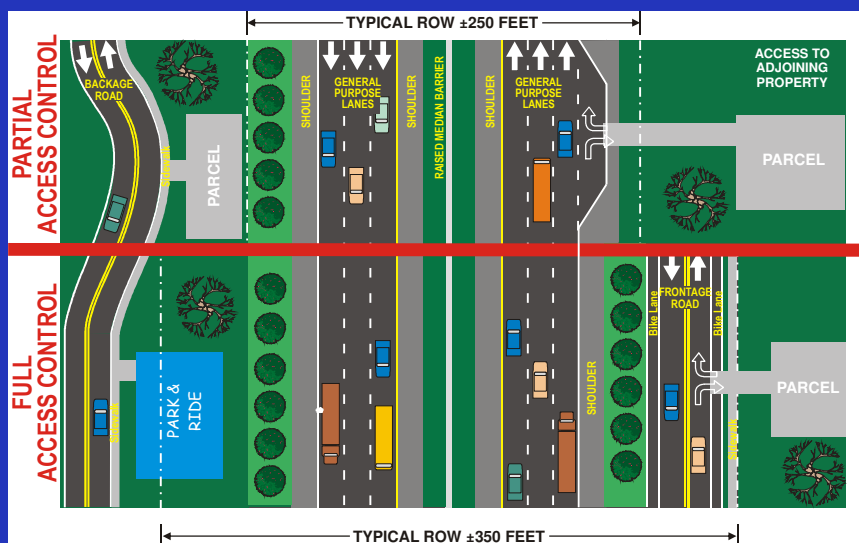
## Alternative I –No Build

- Four general purpose lanes
- Traffic signals at major cross streets

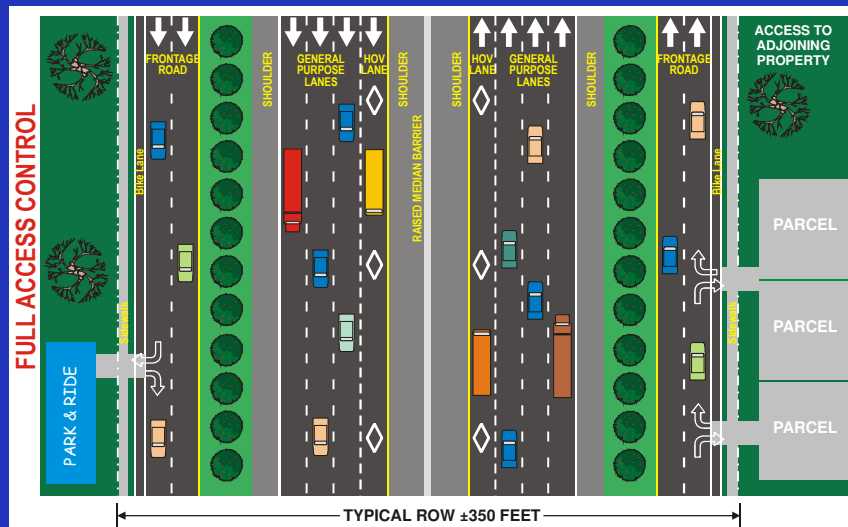


## Alternative II –Highway

- Six to eight general purpose lanes
- Commuter bus

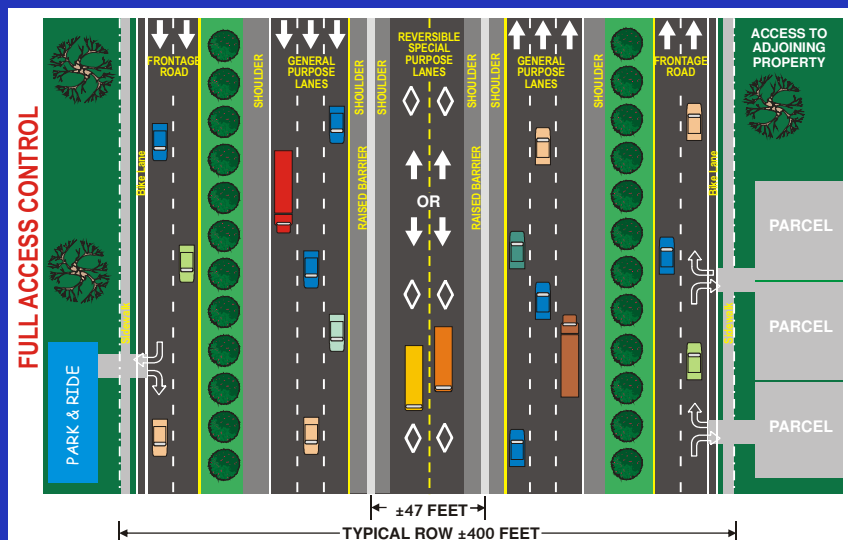


# Corridor Alternatives Modeled (I-540 to Durham Rd)



## Alternative III – Freeway + Transit

- Six general purpose lanes
- Two HOV lanes (each direction)
- Two-lane frontage roads
- Commuter bus



## Alternative IV – Freeway + Transit

- Six general purpose lanes
- Two reversible HOV lanes
- Two-lane frontage roads
- Commuter bus



# Transit Concept Modeled

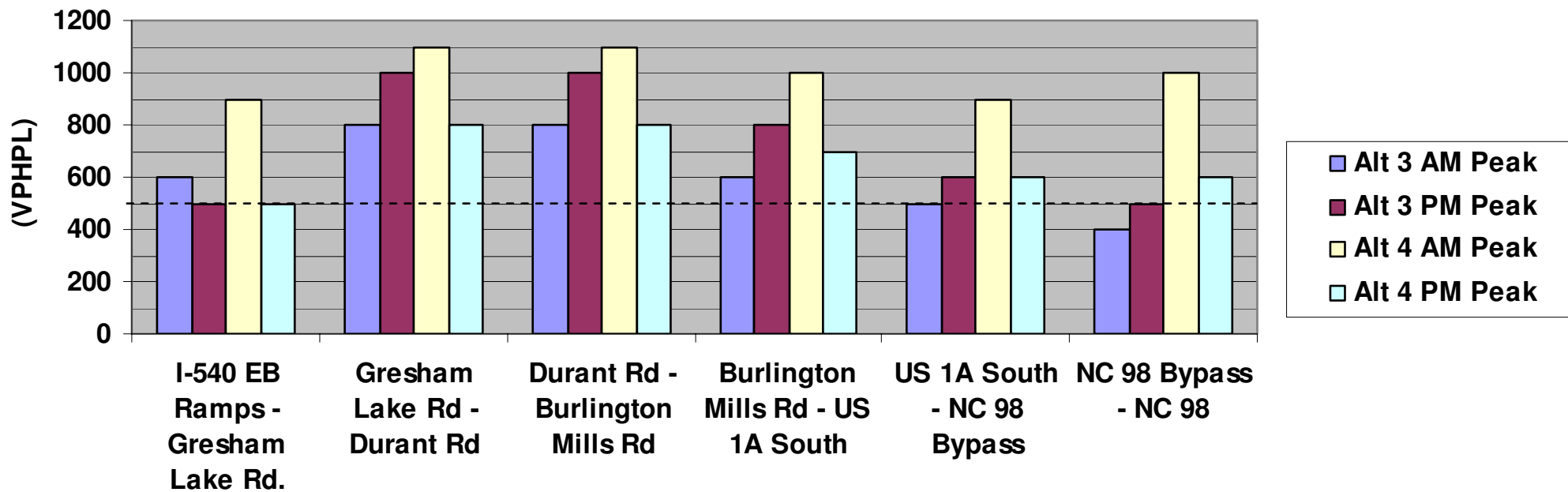


- Commuter Bus
- Service frequency
  - Peak periods: 20 minutes
  - Off-peak periods: 30 minutes
- Two routes
  - Wake Forest to downtown Raleigh
  - Wake Forest to RTP
- Stations
  - Downtown Wake Forest
  - New Falls of the Neuse Road
  - Durant Road
  - I-540

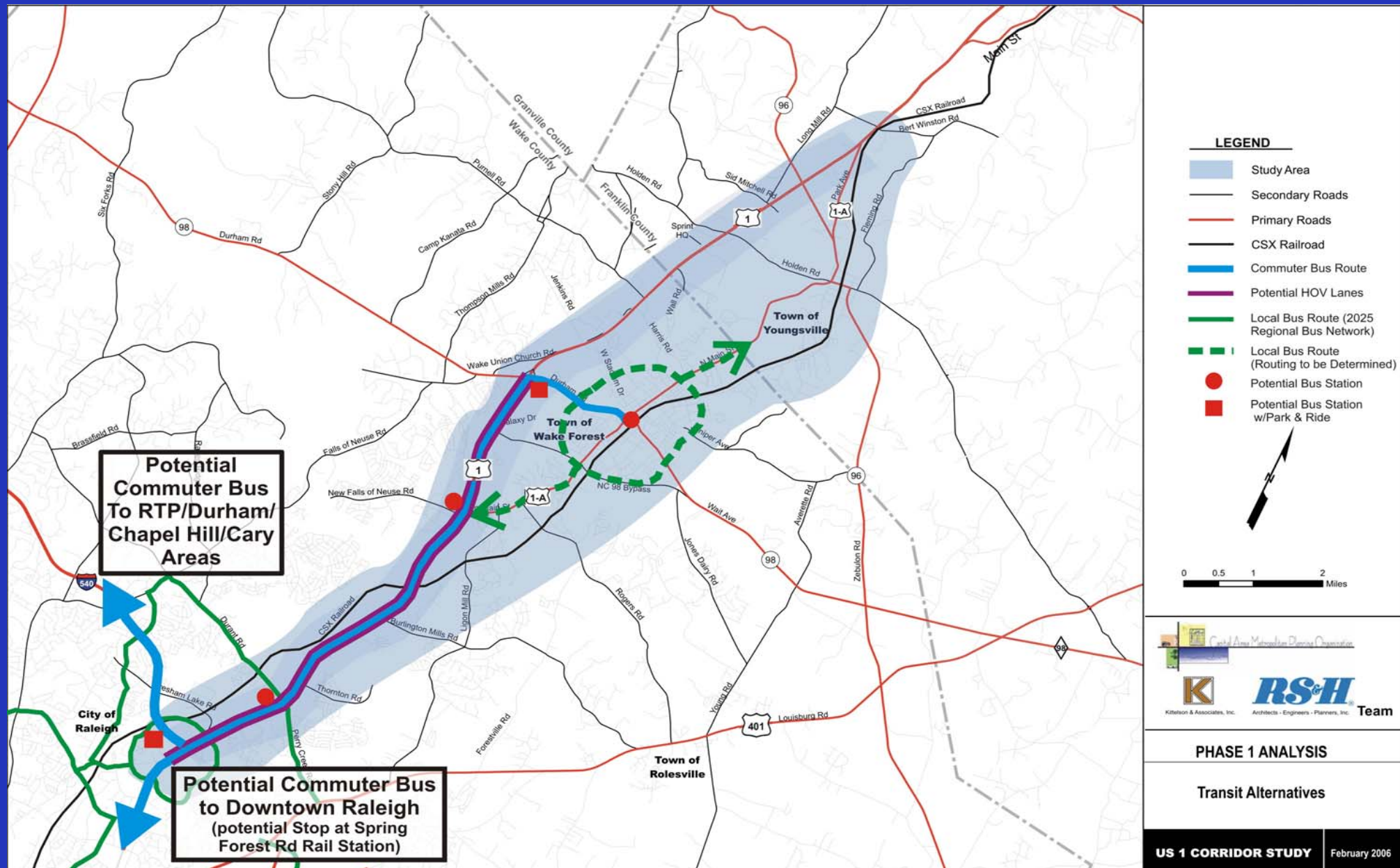
# Peak Period HOV Lane Usage

- HOV demand threshold met, but only for peak hours

2030 Peak Hour HOV Lane Traffic



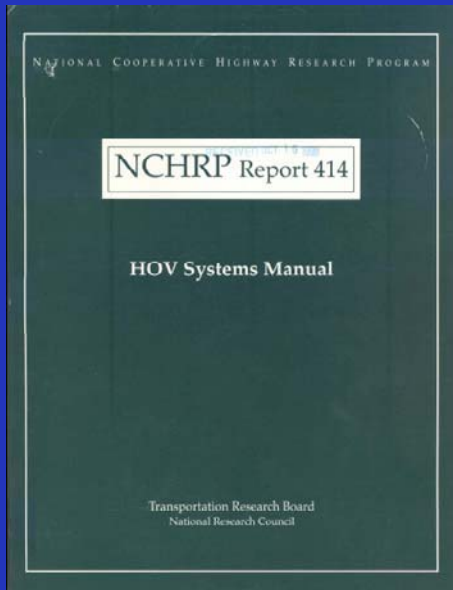
# Transit Concept Modeled



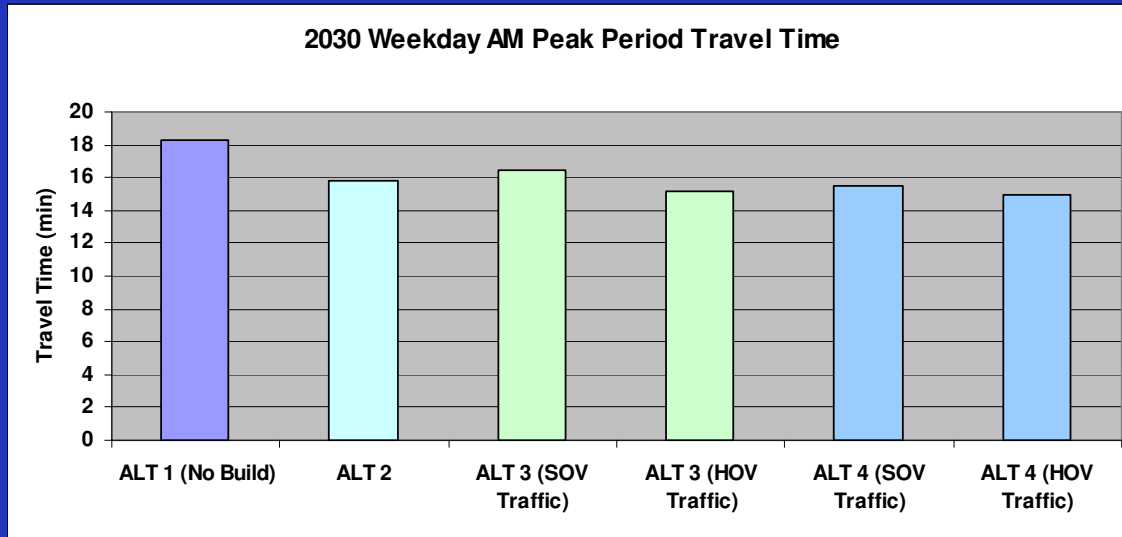


# Guidelines for HOV Facilities

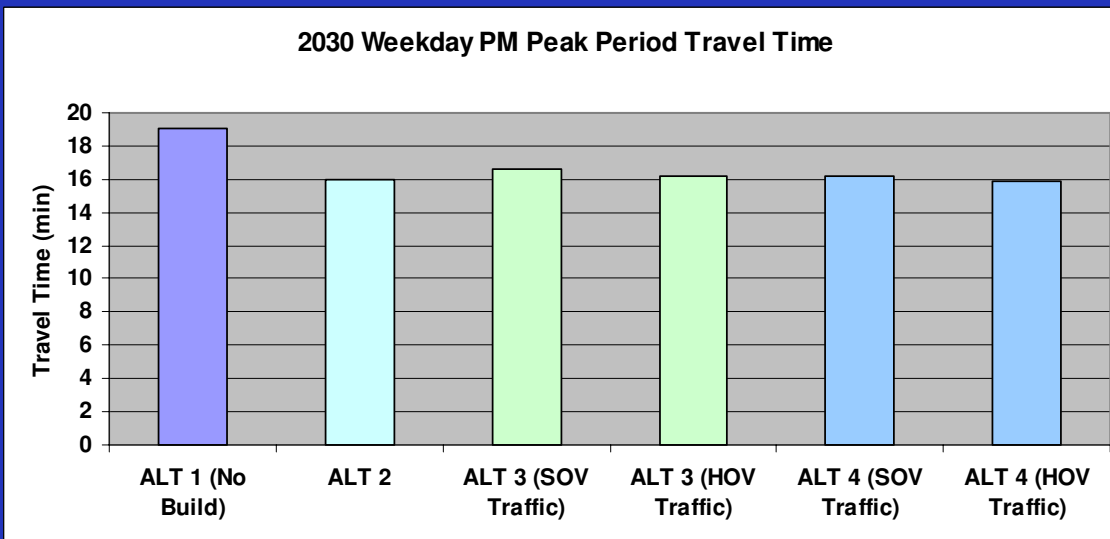
1. HOV users should save average of 5 minutes travel time
2. HOV lanes should have peak hour minimum of 500 vehicles per hour per lane
3. HOV lanes should move more persons per lane than adjacent general purpose lanes
4. HOV lanes should increase average occupancy in corridor by at least 10-15%
5. At least 25% of total carpools utilizing HOV lanes should be new carpools



# Travel Time Savings Comparison



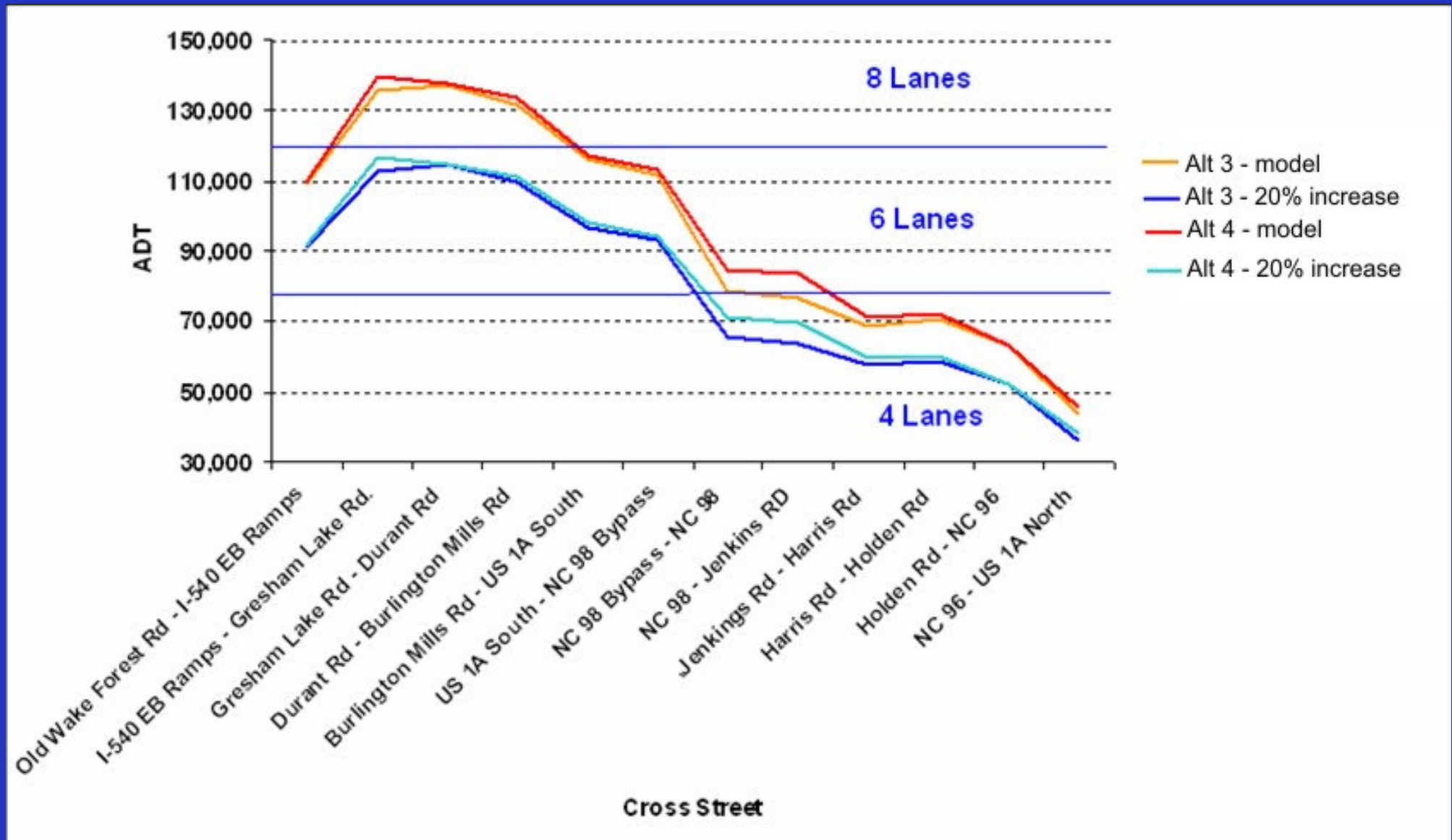
- Average travel time savings less than 5 minutes for entire corridor



- Low incentive to form carpools



# Impact of Shift in Vehicle Occupancy

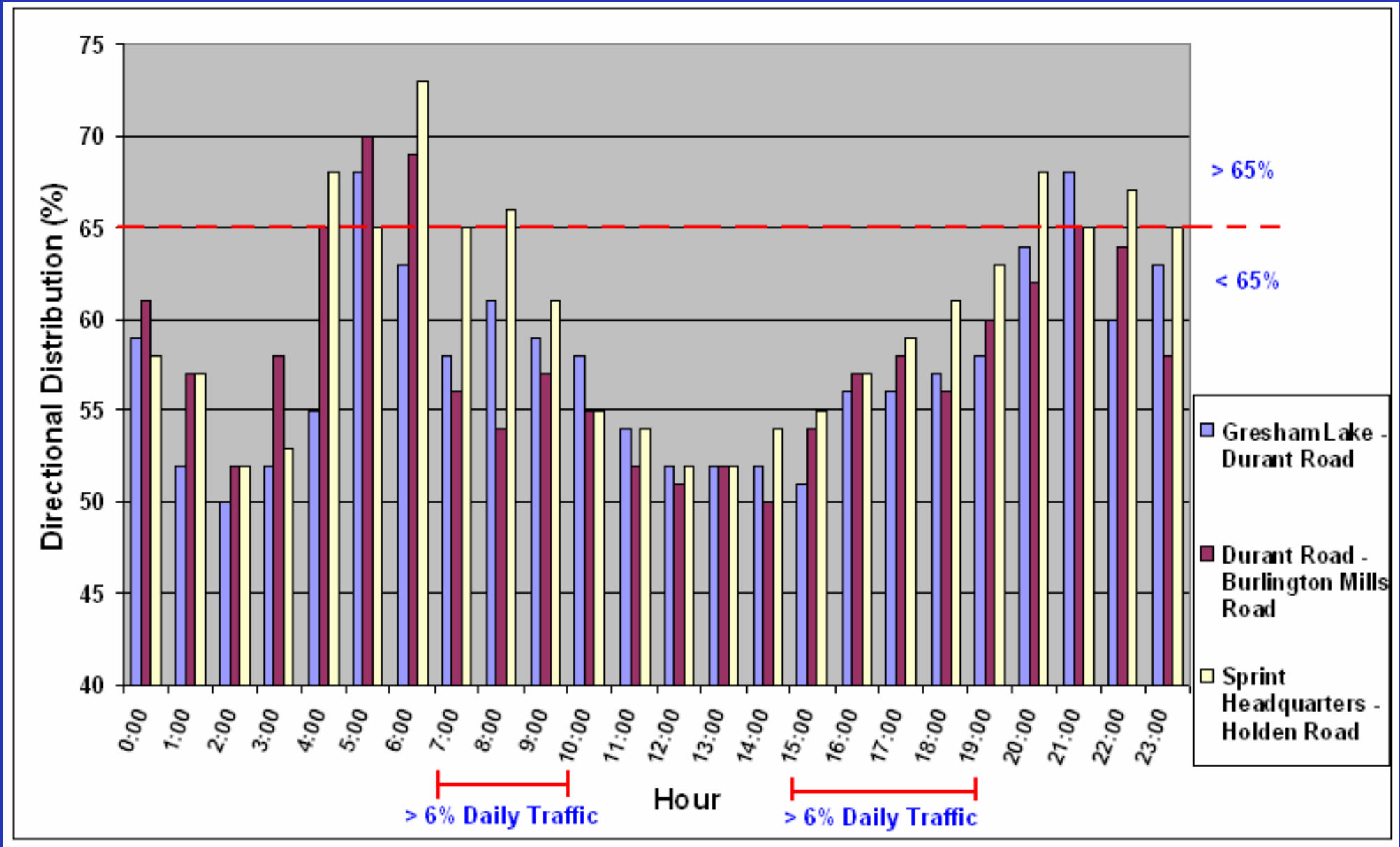


# Reversible HOV Lane Impact

- Provides added peak direction HOV lane capacity
- Warranted if directional distribution is 65-70% during peak periods
- Major disadvantages
  - Added costs to build/maintain system
  - Absence of any travel time savings for drivers traveling in off-peak direction



# Reversible HOV Lane Warrants



# Are HOV Guidelines Met in 2030?

<u>HOV Lane Guidelines</u>	<u>Alternative III</u>	<u>Alternative IV</u>
Travel Time Savings	No	No
Minimum Lane Usage	Yes (but peak only)	Yes (but peak only)
Carries More Persons than General Purpose Lane	Yes (but peak only)	Yes (but peak only)
New Carpool Formation	?	?
Minimum Directional Distribution	Not Applicable	No

# Phase II Multimodal Transportation Alternatives



# Alternative III 'A' Highway + Transit

## Two –Way Frontage Roads

# Alternative III 'B' Highway + Transit

One-Way Frontage Roads  
With Slip Ramps



# US 1 CORRIDOR STUDY



## US 1 CORRIDOR STUDY



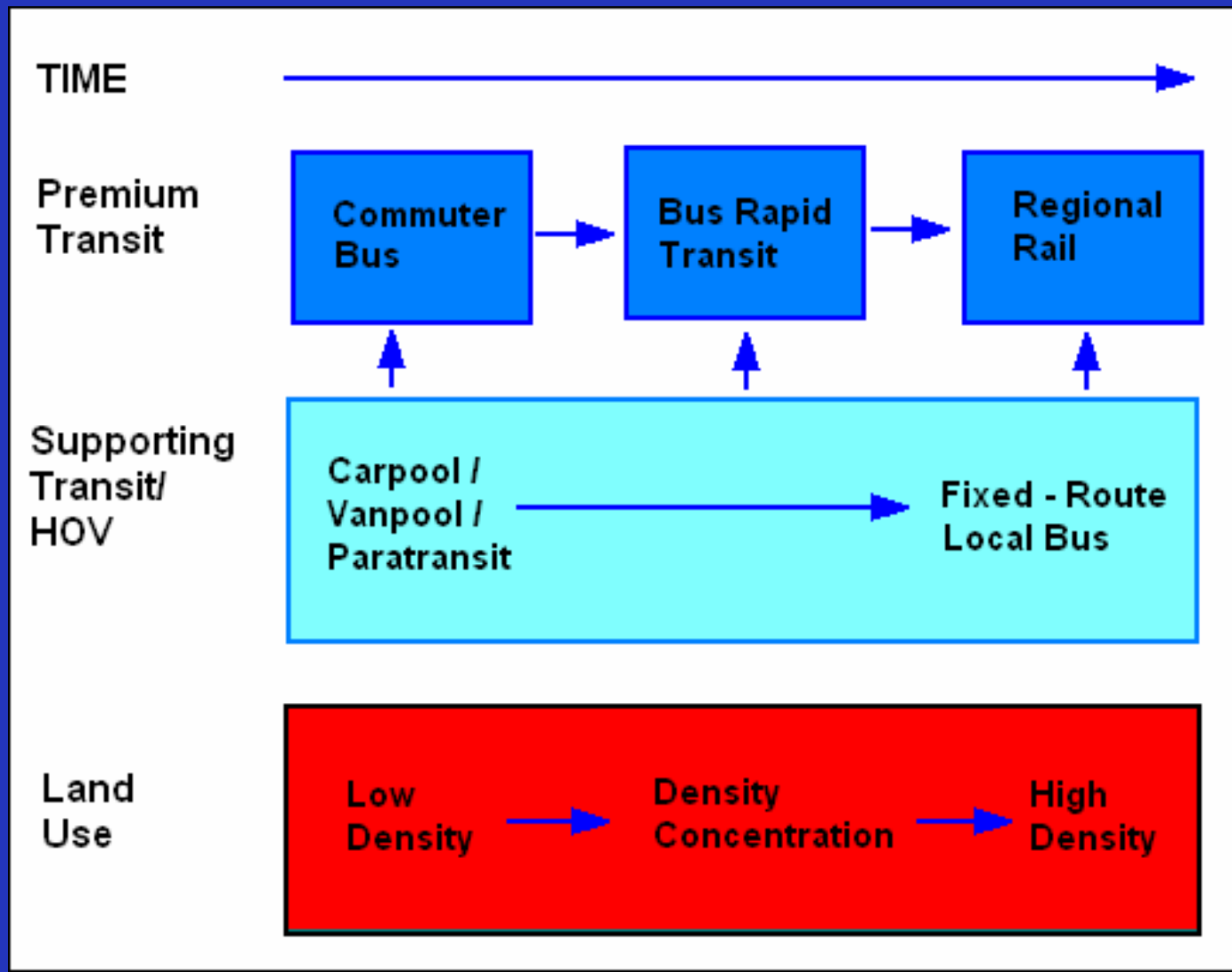
# Two-Way Vs. One-Way Frontage Road Comparison

<u>Features</u>	<u>Two-way</u>	<u>One-way</u>
NC Driver Expectancy	✓	
Less ROW Required		✓
Access to Existing Property		✓
Improved Traffic Operations/Safety		✓
Less Travel Time To Destination	✓	

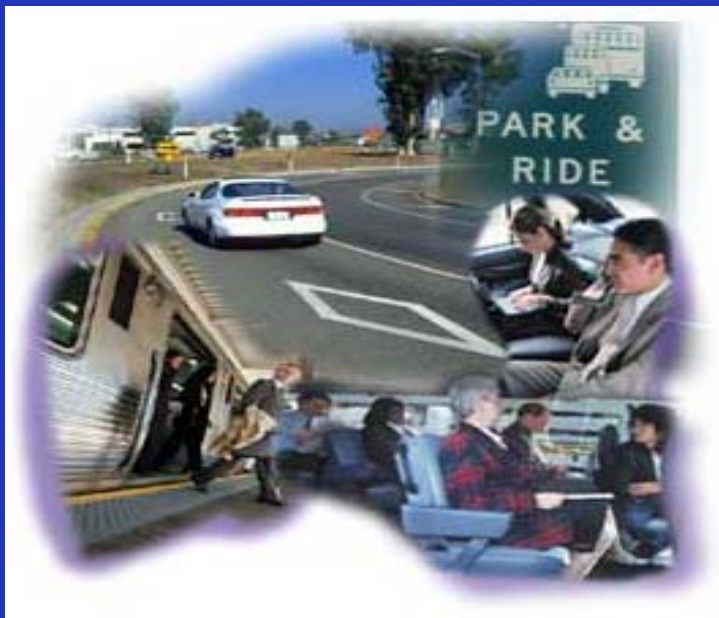
# Transit Integration into Highway Alternatives



# Evolution of Transit in US 1 Corridor

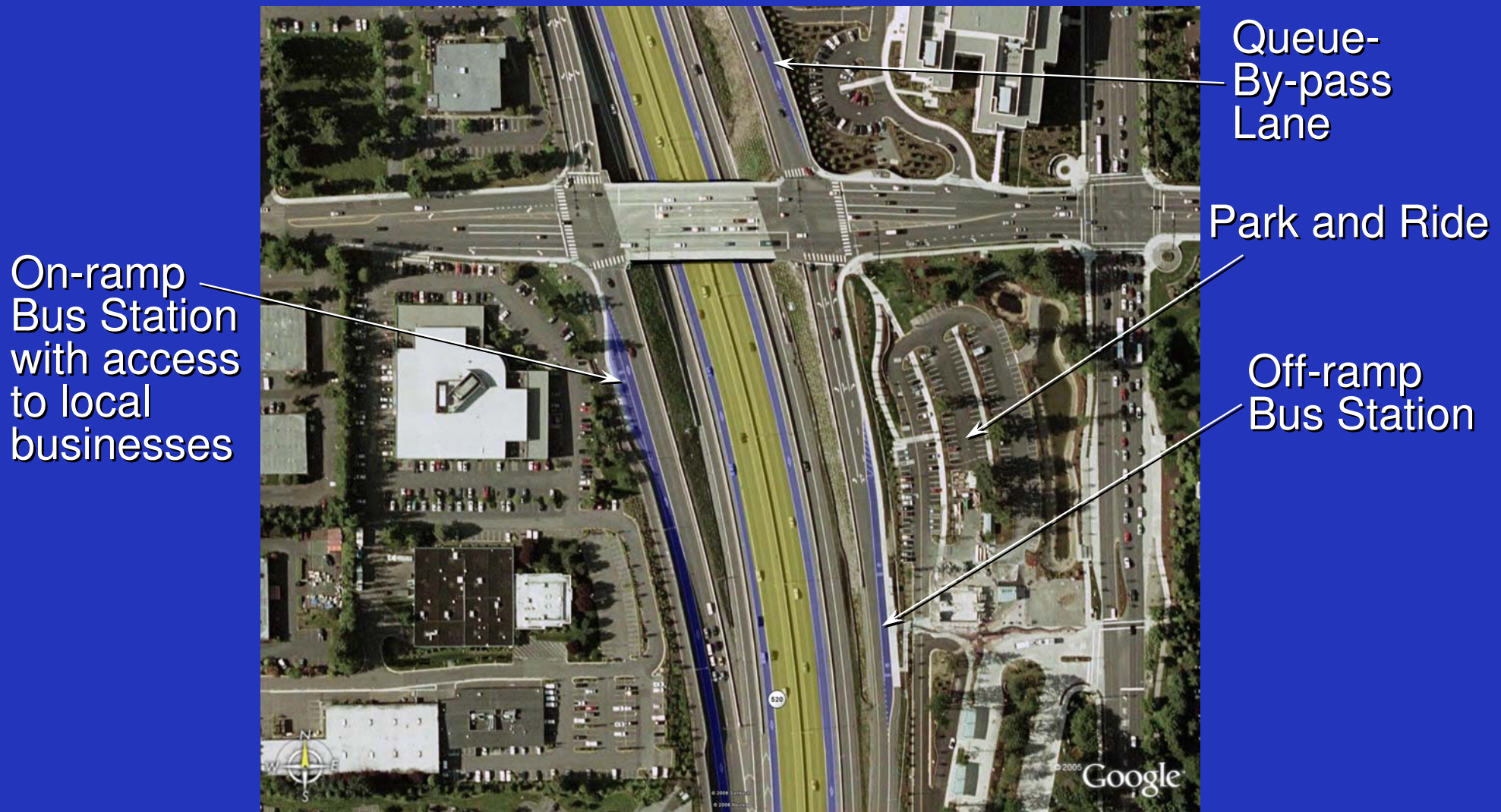


# Transit Integration Components



- Bus Stops
- Local bus/auto drop-off access
- Park-and-ride

# Example of Ramp Bus Station

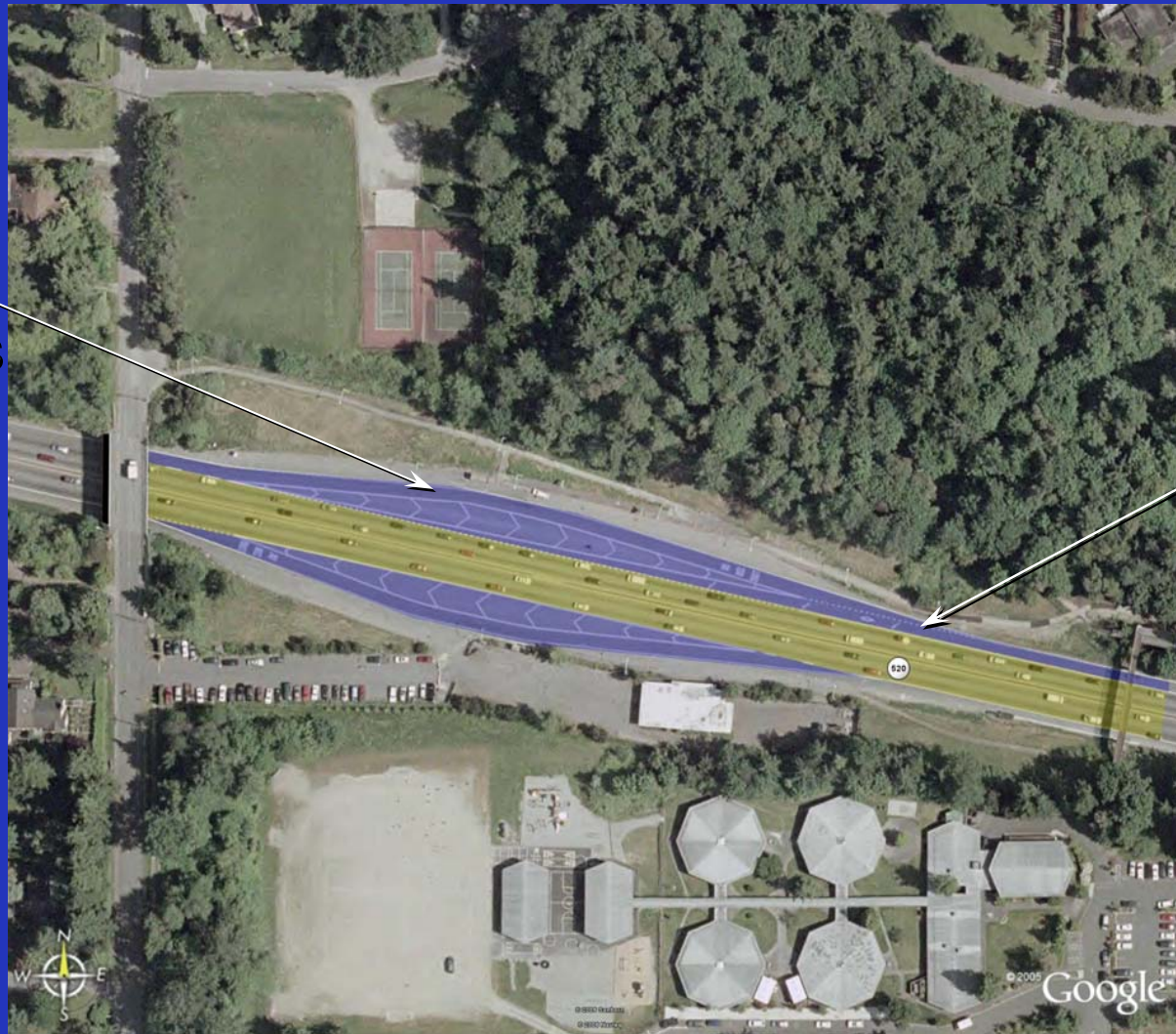




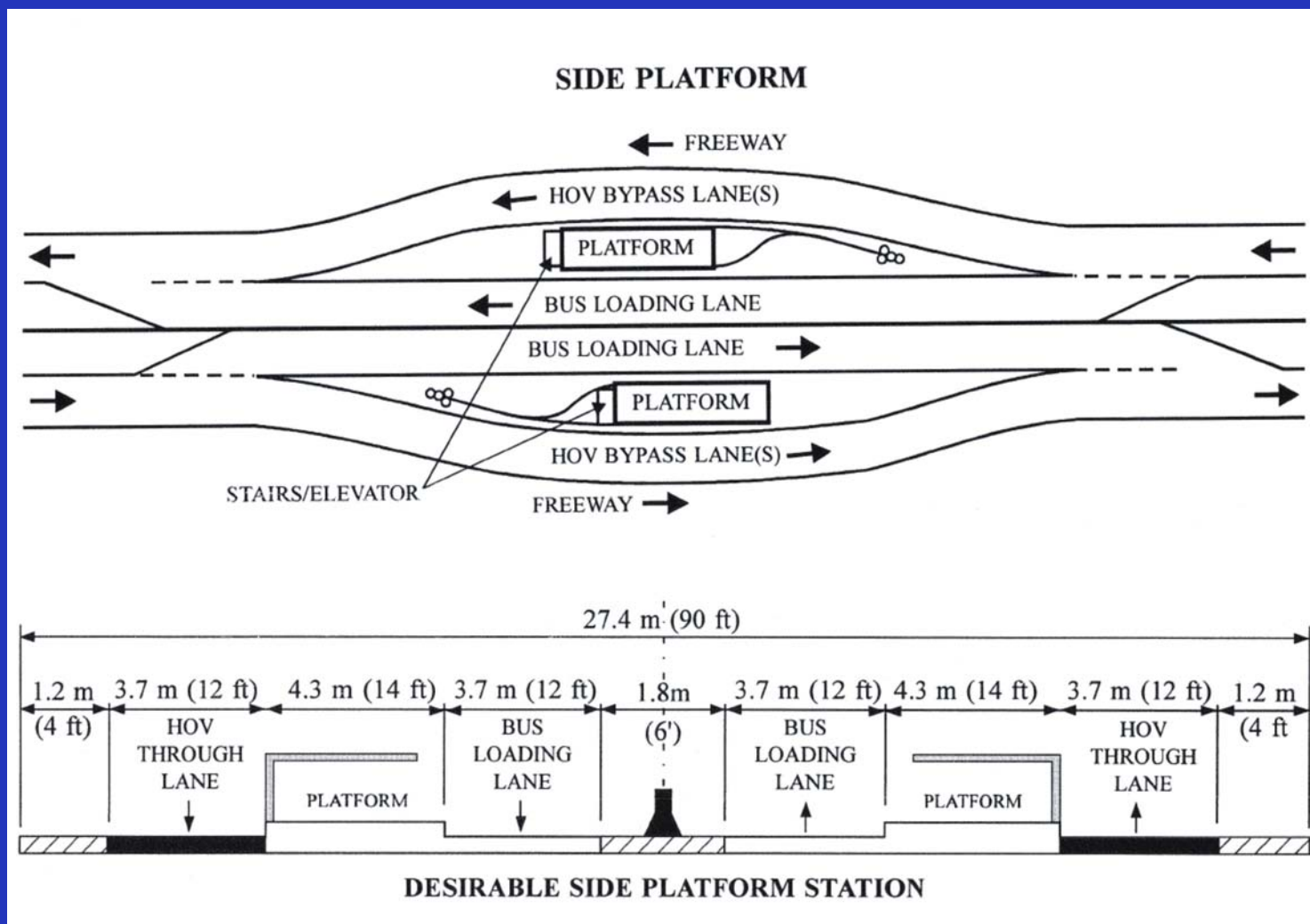
# Example of Outside/Mainline Bus Station

Bus Pull-off  
with access  
to local streets  
and sidewalks

HOV Lane



# Example of Median On-Line Bus Station



Source: NCHRP Report 414 HOV System Manual – Figure 6-25 and Figure 6-26



# Example of Median/Offline Bus Station





# Next Steps....

- Incorporate Feedback from Today's Workshop to Refine Alternatives
- Develop Locally Preferred Alternative
- Mail Newsletter No. 2
- Next Public Meeting June 27, 2006





***Feedback***

***Questions***

***Thank You***